

CLAIMS

What is claimed is:

1. A method of predicting sudden cardiac death in a patient being monitored for sleep apnea, the method comprising:
 - acquiring respiration data and electrocardiogram data from the patient; and
 - analyzing the respiration data and the electrocardiogram data to determine a correlation between sleep apnea and sudden cardiac death.
2. The method of claim 1 and further comprising analyzing the electrocardiogram data for at least one of heart rate variability, heart rate turbulence, QRS duration, ST/T measurements, ventricular late potentials, and T-wave alternans.
3. The method of claim 1 and further comprising acquiring and analyzing at least one of ejection fraction data and wall motion abnormality data.
4. The method of claim 1 and further comprising acquiring respiration data with at least one of impedance measurements, acoustic measurements, thermal measurements, and gas analysis measurements.
5. The method of claim 1 further comprising comparing the electrocardiogram data to stored electrocardiogram patterns to determine an electrocardiogram measurement.
6. The method of claim 5 and further comprising comparing the electrocardiogram measurement to a range to determine an electrocardiogram correlation.
7. The method of claim 1 and further comprising comparing the respiration data to a range to determine a respiration correlation.
8. The method of claim 1 and further comprising determining a mathematical measurement based on a parameter value.
9. The method of claim 8 and further comprising comparing the mathematical measurement to a range to determine a mathematical correlation.

10. The method of claim 1 and further comprising determining a diagnosis based on at least one of an electrocardiogram correlation, a respiration correlation, and a mathematical correlation.
11. The method of claim 1 and further comprising calculating a sudden cardiac death risk score based on at least one of an electrocardiogram correlation, a respiration correlation, and a mathematical correlation.
12. The method of claim 11 and further comprising including at least one of electrocardiogram data, respiration data, and the sudden cardiac death risk score in a single report.
13. The method of claim 1 and further comprising determining a correlation between sleep apnea, sudden cardiac death, and stroke.

14. A computer program embodied by a computer readable medium capable of being executed by a computer, the computer program comprising:
 - an acquisition module that acquires electrocardiogram data and respiration data;
 - an analysis module that analyzes the electrocardiogram data and the respiration data and calculates a plurality of measurements;
 - a diagnosis module that provides a medical diagnosis including a relationship between sleep apnea and sudden cardiac death based on the plurality of measurements; and
 - a report module that provides a report including the relationship between sleep apnea and sudden cardiac death.
15. The computer program of claim 14 wherein the report module provides a report including at least one of electrocardiogram data, an electrocardiogram measurement, respiration data, a respiration measurement, a diagnosis, a recommended treatment, a recommended follow-up test, a sudden cardiac death risk score, a range, a patient identifier, a patient history, and a physician identifier.
16. The computer program of claim 14 wherein the analysis module analyzes the electrocardiogram data for at least one of heart rate variability, heart rate turbulence, QRS duration, ST/T measurements, ventricular late potentials, and T-wave alternans.
17. The computer program of claim 14 wherein the acquisition module acquires at least one of ejection fraction data and wall motion abnormality data.
18. The computer program of claim 14 wherein the acquisition module acquires respiration data with at least one of impedance measurements, acoustic measurements, thermal measurements, and gas analysis measurements.
19. The computer program of claim 14 wherein the analysis module includes a pattern recognition module, the pattern recognition module accessing electrocardiogram patterns.
20. The computer program of claim 14 wherein the analysis module includes a mathematical relationship module that determines if a patient has sleep apnea and determines the relationship between sleep apnea and sudden cardiac death.

21. The computer program of claim 14 wherein the analysis module includes a decision support module that determines the medical diagnosis and a sudden cardiac death risk score.

22. A device for monitoring sleep apnea and a risk of sudden cardiac death for a patient, the device comprising:

at least one electrocardiogram electrode that can be attached to the patient to acquire electrocardiogram data;

at least one respiration electrode that can be attached to the patient to acquire respiration data; and

a patient data acquisition system that receives the electrocardiogram data and the respiration data and determines a correlation between sleep apnea and a risk of sudden cardiac death.

23. The device of claim 22 wherein the patient data acquisition system analyzes the electrocardiogram data for at least one of heart rate variability, heart rate turbulence, QRS duration, ST/T measurements, ventricular late potentials, and T-wave alternans.

24. The device of claim 22 wherein the patient data acquisition system acquires and analyzes at least one of ejection fraction data and wall motion abnormality data.

25. The device of claim 22 wherein the patient data acquisition system acquires respiration data with at least one of impedance measurements, acoustic measurements, thermal measurements, and gas analysis measurements.

26. The device of claim 22 and further comprising a portable housing that can be worn by a patient, the at least one electrocardiogram electrode and the at least one respiration electrode being connectable to the portable housing, the patient data acquisition system being included in the portable housing.

27. A device for monitoring sleep apnea and a risk of sudden cardiac death for a patient, the device comprising:

means for acquiring electrocardiogram data from the patient;

means for acquiring respiration data from the patient; and

means for determining a correlation between sleep apnea and a risk of sudden cardiac death.

28. A device for monitoring sleep apnea and a risk of sudden cardiac death for a patient, the device comprising:

at least one electrode that can be attached to the patient to acquire electrocardiogram data and respiration data; and

a patient data acquisition system that receives the electrocardiogram data and the respiration data and determines a correlation between sleep apnea and a risk of sudden cardiac death.